

and it will exert so powerful an oxidizing action, that in a few moments a carbonaceous material as black as ink will become perfectly clean and colourless. Nothing now will remain to be done but to wash off the acid, which is best done by the addition of water and repeated decantations. I also would advise that the materials thus cleaned should not be dried, but should be kept in bottles with a little alcohol, which prevents their felting together, and does not allow the growth of the byssoid plants which often develop in water.

It is necessary to caution those not familiar with chemistry against using the chlorate of potassa with sulphuric acid in any other way than above directed, as violent and dangerous explosions might result. The process as above given is perfectly safe and very effective.—*Silliman's Journal*, January 1856, p. 145.

*New method of Disintegrating masses of Fossil Diatomaceæ.*

By Prof. J. W. BAILEY.

Many masses of fossil Diatomaceæ are so strongly coherent, that they cannot be diffused in water (for the purpose of mounting in balsam) without a degree of mechanical violence which reduces to fragments many of the most beautiful and interesting forms. This is particularly the case with some specimens from the "infusorial deposits" of California. Some of these I endeavoured to break up, by boiling in water and in acids, and also by repeated freezing and thawing when moistened, but without good results in either case. At last it occurred to me that the adherence might be due to a slight portion of a siliceous cement, which the cautious use of an alkaline solution might remove without destroying any but the most minute shells of the Diatoms. As the case appeared a desperate one, a "heroic remedy" was applied, which was to boil small lumps of the diatomaceous mass in a strong solution of caustic potassa or soda. This proved to be perfectly efficacious, as the masses under this treatment rapidly split up along the planes of lamination, and then crumbled to mud, which being immediately poured into a large quantity of water, ceased to be acted upon by the alkali, and gave, when thoroughly washed, not only all the large shells of the Diatoms in a state of unhoped-for perfection, but also furnished abundance of the minute forms. Having obtained by this method highly satisfactory results from specimens from many localities, I can confidently recommend it as an addition to our modes of research.

The following directions will enable any one to apply the process. Put small lumps of the mass to be examined into a test tube, with enough of a solution of caustic potassa or soda to cover them; then boil over a spirit-lamp for a few seconds, or a few minutes, as the case may require. If the solution is sufficiently strong, the masses will rapidly crumble to mud, which must be poured *at once* into a large quantity of water, which after subsidence is removed by decantation. If the mass resists the action of the alkaline liquor a still stronger solution should be tried, as while some specimens break up instantly in a weak solution of alkali, others require that it should be of the consistence of a dense syrup. The mud also should be

poured off as fast as it forms, so as to remain as short a time as possible in the caustic ley.

The only specimens which I have found not to give good results by the method above described, are those from Tampa Bay, Florida, and the infusorial marls from Barbadoes. In the masses from Tampa the lapidification is so complete, that the alkali destroys the shells before the lumps break up; and in the case of the Barbadoes marls the cementing material is calcareous, and requires a dilute acid for its removal. In applying the above process one caution is necessary, which is to thoroughly wash the shells with *water*, and not with acids, as the latter will cause the deposit of a portion of the dissolved silica and materially injure the beauty of the specimens. When the washings are no longer alkaline, the specimens may be thoroughly cleansed by acids, or by the chlorate process described above.—*Silliman's Journal*, May 1856, p. 356.

METEOROLOGICAL OBSERVATIONS FOR JUNE 1856.

*Chiswick*.—June 1. Hazy: cloudy. 2, 3. Very fine. 4. Very fine: cloudy: lightning at night. 5—7. Very fine. 8. Dull and cloudy. 9, 10. Very fine. 11. Cloudless. 12. Very fine: rain at night. 13. Rain. 14. Showery and boisterous. 15. Very fine: cloudy: clear and fine. 16. Very fine. 17. Showery. 18. Very fine: cloudy: rain. 19. Rain. 20. Showery. 21. Very fine: cloudy: rain. 22. Cloudy and fine. 23. Overcast. 24. Very fine: uniformly overcast. 25. Very fine. 26. Sultry. 27. Cloudless and hot. 28. Uniformly overcast: sultry: cold at night: range of temperature 45°. 29, 30. Clear and dry air.

Mean temperature of the month .....	58°·65
Mean temperature of June 1855 .....	57·98
Mean temperature of June for the last thirty years .....	60·31
Average amount of rain in June .....	1·880 inch.

*Boston*.—June 1. Cloudy: rain A.M. and P.M. 2—6. Fine. 7. Cloudy. 8—11. Fine. 12. Cloudy: rain P.M. 13, 14. Cloudy: rain A.M. and P.M. 15. Cloudy. 16. Fine. 17. Rain A.M. 18. Cloudy. 19. Cloudy: rain A.M. 20. Cloudy. 21. Fine: rain P.M. 22. Cloudy: rain A.M. and P.M. 23, 24. Cloudy. 25. Fine. 26. Cloudy: thermometer 86° P.M. 27. Fine: thunder P.M. 28. Cloudy. 29. Fine. 30. Rain A.M. and P.M.

*Sandwick Manse, Orkney*.—June 1. Cloudy A.M.: drizzle P.M. 2. Drizzle A.M.: bright P.M. 3. Cloudy A.M. and P.M. 4. Cloudy A.M.: drops P.M. 5. Bright A.M.: cloudy P.M. 6. Cloudy A.M. and P.M. 7. Rain A.M.: bright P.M. 8. Clear A.M. and P.M. 9. Cloudy A.M.: drops, clear P.M. 10. Clear A.M.: showers P.M. 11. Rain A.M. and P.M. 12, 13. Bright A.M.: clear, fine P.M. 14. Cloudy A.M.: sleet-showers P.M. 15. Clear A.M.: cloudy P.M. 16. Showers A.M.: cloudy P.M. 17. Showers A.M. and P.M. 18. Bright A.M.: showers P.M. 19. Rain A.M.: bright P.M. 20. Cloudy A.M.: bright P.M. 21. Rain A.M.: bright P.M. 22. Bright A.M. and P.M. 23. Clear A.M.: cloudy P.M. 24. Fog A.M.: drizzle P.M. 25. Hazy A.M.: damp P.M. 26. Drops A.M.: rain, clear P.M. 27. Bright A.M.: damp P.M. 28. Damp A.M.: showers P.M. 29, 30. Clear A.M.: cloudy P.M.

Mean temperature of June for previous twenty-nine years ...	52°·76
Mean temperature of this month .....	51·47
Mean temperature of June 1855 .....	52·23
Average quantity of rain in June for previous sixteen years ...	2·24 inches.